# Volunteer Lake Assessment Program Individual Lake Reports

## GRANITE LAKE, STODDARD, NH

**MORPHOMETRIC DATA**

| | | | | | |
|---|---|---|---|---|---|
| **Watershed Area (Ac.):** | 2,432 | **Max. Depth (m):** | 33.6 | **Flushing Rate (yr$^{-1}$):** | 0.7 |
| **Surface Area (Ac.):** | 228 | **Mean Depth (m):** | 9.8 | **P Retention Coef:** | 0.61 |
| **Shore Length (m):** | 4,500 | **Volume (m$^3$):** | 9,027,000 | **Elevation (ft):** | 1278 |

**TROPHIC CLASSIFICATION**

| Year | Trophic class |
|---|---|
| 1996 | OLIGOTROPHIC |
| 2006 | OLIGOTROPHIC |

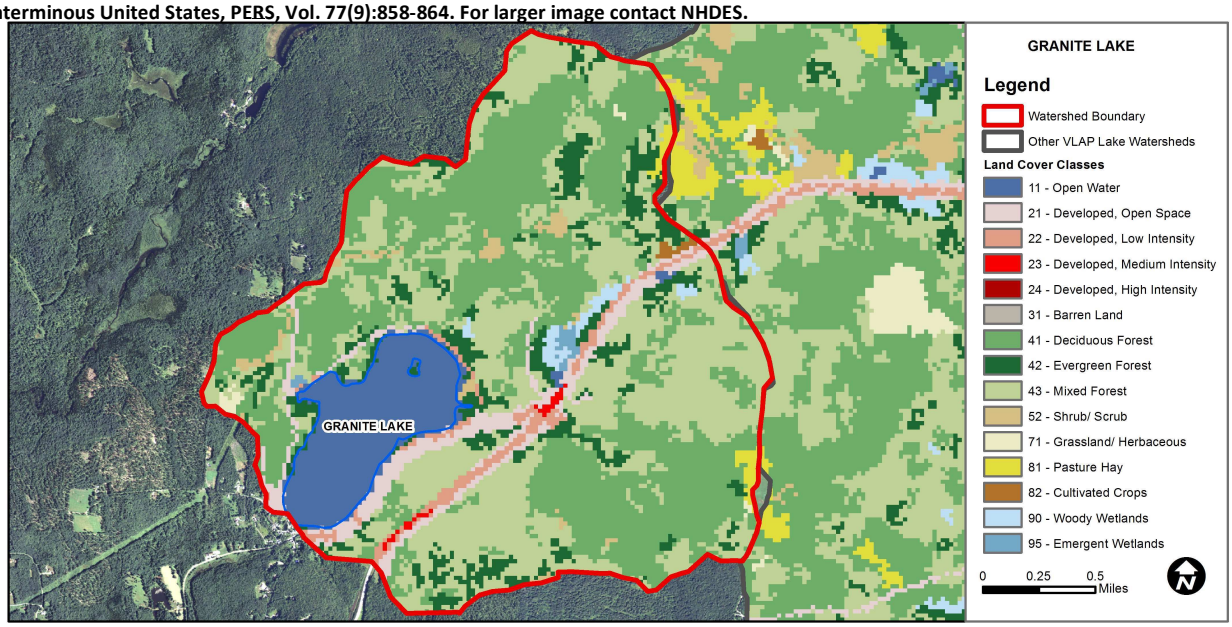
**KNOWN EXOTIC SPECIES**

**The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.**

| Designated Use | Parameter | Category | Comments |
|---|---|---|---|
| Aquatic Life | Phosphorus (Total) | Good | >/=5 samples and median is < threshold but > 1/2 threshold value. |
| | pH | Bad | >10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin. |
| | D.O. (mg/L) | Encouraging | < 10 samples and no exceedance of criteria. More data needed. |
| | D.O. (% sat) | Encouraging | < 10 samples and no exceedance of criteria. More data needed. |
| | Chlorophyll-a | Very Good | >5 samples and median is < 1/2 threshold. |
| Primary Contact Recreation | E. coli | Encouraging | >2 samples exist that are > 75% of geometric mean criteria, but not enough samples to calculate geomertic mean. No single sample exceedances. More data needed. |
| | Cyanobacteria | Slightly Bad | Cyanobacteria bloom(s). |
| | Chlorophyll-a | Very Good | At least 10 samples with 0 exceedances of criteria. |

**WATERSHED LAND USE SUMMARY**

**Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.**



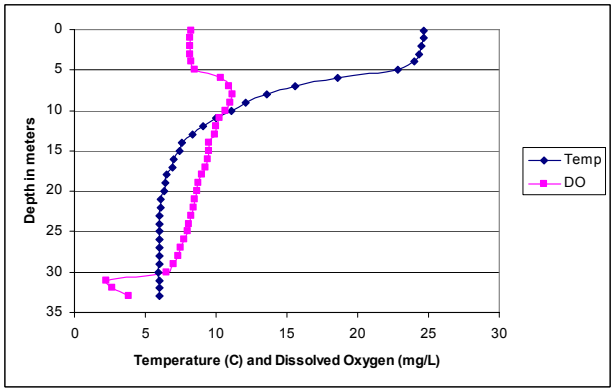

| Land Cover Category | % Cover | Land Cover Category | % Cover | Land Cover Category | % Cover |
|---|---|---|---|---|---|
| Open Water | 9.46 | Barren Land | 0 | Grassland/Herbaceous | 0.3 |
| Developed-Open Space | 5 | Deciduous Forest | 36.11 | Pasture Hay | 0.67 |
| Developed-Low Intensity | 2.11 | Evergreen Forest | 8.75 | Cultivated Crops | 0.19 |
| Developed-Medium Intensity | 0.27 | Mixed Forest | 34.65 | Woody Wetlands | 0.87 |
| Developed-High Intensity | 0 | Shrub-Scrub | 1.22 | Emergent Wetlands | 0.36 |

# VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS
## GRANITE LAKE, STODDARD, NH
## 2012 DATA SUMMARY

**OBSERVATIONS AND RECOMMENDATIONS** (*Refer to Table 1 and Historical Deep Spot Data Graphic)*

- **CHLOROPHYLL-A:** Chlorophyll levels were very low. Historical trend analysis indicates a relatively stable chlorophyll level since monitoring began.
- **CONDUCTIVITY/CHLORIDE:** Conductivity levels were elevated in 603 Granite Lake Rd. Inlet and Townline Inlet. Chloride levels were also slightly elevated. Tributaries with elevated conductivity/chloride are located at the Southeastern end of the lake along Rt. 9 which is a heavily salted roadway.
- **TOTAL PHOSPHORUS:** Deep spot phosphorus levels were very low. Historical trend analysis indicates the epilimnetic (upper water layer) phosphorus levels tend to fluctuate from year to year.
- **TRANSPARENCY:** Transparency levels were much lower in June due to a major storm event and subsequent erosion of sediments in the watershed. Transparency levels had recovered to normal in August. Historical trend analysis indicates lake transparency fluctuates from year to year.
- **TURBIDITY:** Turbidity levels were fairly low, however the metalimnetic (middle water layer) turbidity was elevated in June potentially due to the noted storm event. Turbidity levels were elevated in 603 Granite Lake Rd. in July potentially due to low tributary flows.
- **PH:** pH decreased to undesirable levels in the metalimnion and hypolimnion (lower water layer).
- **RECOMMENDED ACTIONS:** Refer to U.S. Forest Service's "Environmentally Sensitive Road Maintenance Practices for Dirt and Gravel Roads" to help stabilize dirt roads around the lake and prevent washout during storm events. Refer to DES' "NH Homeowner's Guide to Stormwater Management" to educate watershed residents on ways to reduce stormwater runoff from their properties.

**Dissolved Oxygen & Temperature Profile**




**Granite Lake Phytoplankton Population**

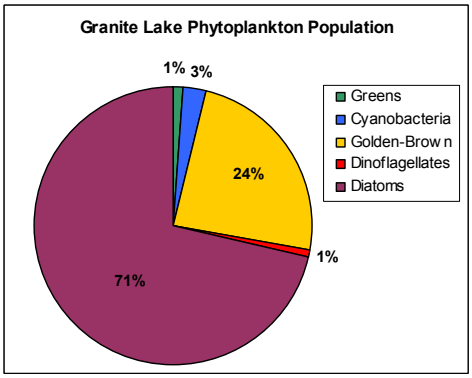



Table 1. 2012 Average Water Quality Data for GRANITE LAKE

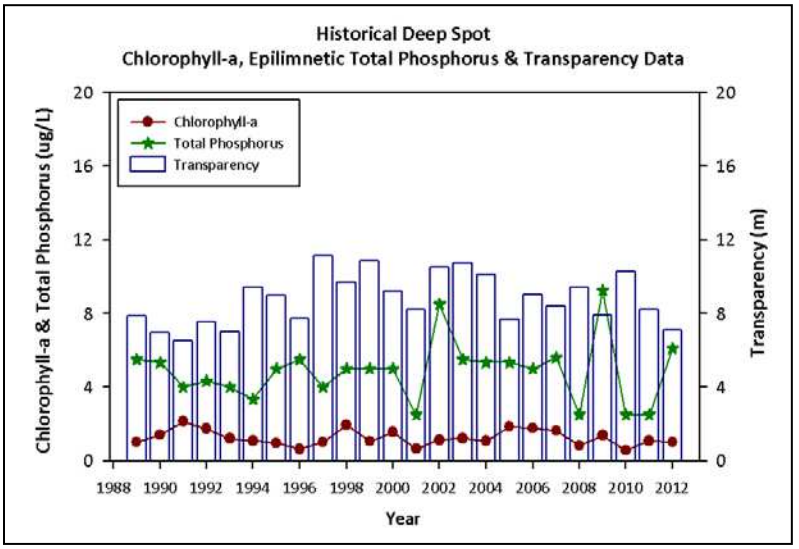
| Station Name | Alk. | Chlor-a | Chloride | Cond. | Total P | Trans. | | Turb. | pH |
|---|---|---|---|---|---|---|---|---|---|
| | mg/l | ug/l | mg/l | uS/cm | ug/l | m | | ntu | |
| | | | | | | NVS | VS | | |
| 305 North Shore Rd | | | | 19.4 | 4 | | | 1.25 | 6.19 |
| 395 North Shore Rd | | | | 23.7 | 6 | | | 0.34 | 6.2 |
| 603 Granite Lake Rd | | | | 171.0 | 3 | | | 1.78 | 5.00 |
| Deep Epilimnion | 2.03 | 1.02 | 8 | 55.8 | 4 | 7.08 | 8.07 | 0.57 | 6.58 |
| Deep Metalimnion | | | | 58.1 | 3 | | | 0.94 | 6.48 |
| Deep Hypolimnion | | | | 58.4 | 3 | | | 0.38 | 6.02 |
| Inlet | | | 17 | 96.1 | 11 | | | 1.12 | 6.22 |
| Outlet In Stream | | | | 57.1 | 4 | | | 0.49 | 6.43 |
| Townline Inlet | | | 39 | 215.3 | 4 | | | 0.34 | 5.34 |

**NH Water Quality Standards:** Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
**Chloride:** < 230 mg/L (chronic)
**E. coli:** > 88 cts/100 mL – public beach
**E. coli:** > 406 cts/100 mL – surface waters
**Turbidity:** > 10 NTU above natural level
**pH:** 6.5-8.0 (unless naturally occurring)

**NH Median Values:** Median values for specific parameters generated from historic lake monitoring data.
**Alkalinity:** 4.9 mg/L
**Chlorophyll-a:** 4.58 mg/m$^3$
**Conductivity:** 40.0 uS/cm
**Chloride:** 4 mg/L
**Total Phosphorus:** 12 ug/L
**Transparency:** 3.2 m
**pH:** 6.6

## HISTORICAL WATER QUALITY TREND ANALYSIS

| Parameter | Trend | Explanation |
|---|---|---|
| Chlorophyll-a | Stable | Data not significantly increasing or decreasing. |
| Transparency | Variable | Data fluctuate annually, but are not significantly increasing or decreasing. |
| Phosphorus (epilimnion) | Variable | Data fluctuate annually, but are not significantly increasing or decreasing. |




This report was generated by the NH DES Volunteer Lake Assessment Program (VLAP). For more information contact:
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